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I, LEANNE MYNOTT, MANAGER EXAMINATION SUPPORT AND SALES hereby certify that annexed is a true copy of the Provisional specification in connection with Application No. 2003903626 for a patent by SAVE THE WORLD AIR, INC. as filed on 15 July 2003.

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Twenty-eighth day of July 2004

LEANNE MYNOTT
MANAGER EXAMINATION SUPPORT
AND SALES

DEVICE FOR SAVING FUEL AND REDUCING EMISSIONS

TECHNICAL FIELD

This invention relates to a device for saving fuel in combustion engines and reducing emissions, e.g. gaseous emissions to the atmosphere.

BACKGROUND ART

This invention relates particularly but not exclusively to a device for saving fuel and reducing emissions for use on internal combustion engines, e.g., normally aspirated engines and engines with fuel injectors. It will therefore be convenient to describe the invention with reference to these example applications.

However, it is to be clearly understood that the invention is capable of broader application.

For example, the invention can be applied to any combustion engine and not just motor vehicle engines.

Incomplete combustion of liquid fuels increases the cost of running engines. Further unburned fuel e.g. hydrocarbons are vented to the atmosphere through the exhaust and are generally harmful to the atmosphere.

Some of the gases emitted into the atmosphere include carbon monoxide, various nitrogen oxides, and unburned hydrocarbons.

Naturally therefore any device which acted to decrease fuel consumption and thereby lower the running costs of a vehicle as well as lowering the pollution released to the atmosphere would be a major advance in the art and would be most advantageous to society generally.

International patent application no. PCT/AU01/00585 describes a fuel saving device including a support which mounts a plurality of magnets in opposed polarities provided in a number of embodiments which enable the device to be incorporated in the fuel system of combustion engines with resulting fuel savings and a reduction in emissions.

It is generally agreed that there is strong evidence of a positive effect when carbon based liquid and gaseous fuels are magnetically influenced.

It is also generally agreed that there is a possibility that the "air" (and probably specifically the O2 atoms within air) is influenced positively in terms of its ability combine with the gasoline particles.

Our tests to date have shown to our satisfaction that although gasoline can be influenced by magnetic fields arranged in particular alignments and cross alignments, the greatest influence is achieved when the air is treated either individually or in conjunction with the gasoline at the point where the air and gasoline mix.

As a result of researching available data, and our own on-going practical testing observations and recordings, we believe that the fuel that combusts in an engine is not just the gasoline, but is the combination of gasoline and air. This distinction becomes important in understanding where the influence of a magnetic field may be most dominant. Any reference to fuel in this document means "the combination of gasoline and air".

The magnetic influences and/or effects that are most likely to be influencing the gasoline/air mix going into the combustion chamber of the engine include the viscosity of the fluid particles of the fuel.

Practical testing carried out in our research facility in 2002 proved that the introduction of magnetic fields with particular alignments and cross alignments, affects positively the ability of gasoline fluid particles to atomise to a greater extent, into air. The fluid particles of the gasoline/air mix, became smaller and lighter.

There is no assertion as to any particular effect of magnetic influence on the gasoline prior to the point of atomisation in air. It should however be noted that Hans Dehmelt of the University of Washington, Seattle, in his 40 years of research into the basic properties of electrons showed that the electron has only four known characteristics: mass, charge, spin and magnetism. The magnetic effects seen on a daily basis, and employed in this device relate to ferromagnetic interaction. When we talk about "non-magnetic", we are actually saying non-ferromagnetic as there is no reaction with ferrite based substances. The recognition of "non-ferromagnetic forces" that are none the less magnetic, is a direct result of Dehmelt's work and their

influences, although proven to exist, are yet to be quantified.

General laws of physics imply that the smaller the particle, the less surface tension, and, the decreased weight of that particle allows for an increased "suspension" time in the air as it travels the distance through the intake manifold from the area of magnetic influence, to the combustion chamber.

The fuel velocity through the intake manifold is influential in keeping fluid particles suspended in the air and this ability is enhanced if the fluid particles are smaller and lighter. The greater the amount of fluid in fine suspension on reaching the combustion chamber, the greater the fluid surface area exposed to air at the point of combustion. This has a positive effect on the rate of burn and the completeness of that burn.

The result is that more power is generated from the same amount of fuel, and with a more efficient burn less harmful gases are exhausted from the engine.

As the main requirement for combustion to occur in this situation is the presence of oxygen (O2), it seems logical to deduce that the most influential part of the air portion of fuel, is the O2 molecule.

Practical testing has been carried out in our research facility to identify the influence of magnetic fields on air before it mixes with gasoline to become "the fuel".

There is strong evidence to suggest that "air" (or more likely, specifically the O2 molecule in air) is susceptible to magnetic influence and may be the more dominant of the effected fuel components of gasoline and air.

The magnetic field patterns which are created by fuel saving devices such as that discussed by international patent application no. PCT/AU01/00585 are important and we conclude that multidirectional fields are more successful than orderly single line fields and that the devices may need to be arranged in different ways to best suit particular engines.

It is thus an object of the present invention to provide improvements to fuel saving devices of the aforementioned character.

Further objects and advantages of the present invention will become apparatus from the ensuing description which is given by way of example.

DISCLOSURE OF INVENTION

According to the present invention, there is provided a method of improving the fuel economy and emission outputs of a combustion engine the method comprising the steps of interposing a fuel saving device within a sealed air/fuel environment of a fuel system for the engine characterized in that the fuel saving device comprises a disc-like non-magnetic solid support body having a central opening therein and a continuous periphery which adapts the support body for positioning within a sealed air/fuel environment of a fuel system of a combustion engine at an air/fuel mixing point within the fuel system in a manner in which the longitudinal axis of the opening is co-axial with fluid flow paths within the air/fuel environment, and a plurality of sets of permanent magnets having opposed polarities supported by the periphery and positioned to provide a continuous magnetic field across the opening in the support body and perpendicular with the direction of flow of the air/fuel mixture.

The magnets can be keyed into the periphery of the body and each have a magnetic face which extends to and is communicable with the central opening.

The support body can be provided with a plurality of apertures therein to facilitate the mixture of the support body in a fuel/air line leading to a combustion chamber of an internal combustion engine.

The support body can be provided with top and bottom cover plates which secure the magnets against displacement via top and bottom surfaces of the support body.

There can be an even number of magnets with the poles of opposite pairs of the magnets reversed relative to each other.

The device can have four magnets spaced substantially equidistantly about the circumference of the central opening in the support body, arranged at approximately 90° apart from each other.

The device can include six magnets spaced substantially equidistantly about the circumference of a substantially oval shaped central opening in the support body.

According to a further aspect of the present invention, there is provided a fuel saving device comprising a disc-like non-magnetic solid support body having a central opening therein and a continuous periphery which adapts the support body for positioning within a sealed air/fuel environment of a fuel system of a combustion engine at an air/fuel mixing point within the fuel system in a manner in which the longitudinal axis of the opening is co-axial with fluid flow paths within the air/fuel environment, and a plurality of sets of permanent magnets having opposed polarities supported by the periphery and positioned to provide a continuous magnetic field across the opening in the support body and perpendicular with the direction of flow of the air/fuel mixture.

A further magnet may be supported within the central opening.

The support body may be deeper than the magnets in an axial direction.

For a multithroat carburettor housing multiple passages each passage may be provided with two inwardly facing magnets spaced at right angles with a magnet or magnetisable material between juxtapostioned passages.

The magnets can be keyed into the periphery of the body and each have a magnetic face which extends to and is communicable with the central opening.

The support body can be provided with a plurality of apertures therein to facilitate the fixture of the support body in a fuel/air line leading to a combustion chamber of an internal combustion engine.

The support body can be provided with top and bottom cover plates which secure the magnets against displacement via top and bottom surfaces of the support body.

There can be an even number of magnets with the poles of opposite pairs of the magnets reversed relative to each other.

The device can be adapted to suit single or multiple throat carburettors.

According to a further aspect of the present invention, there is provided a fuel system for an internal combustion engine comprising a single or double throat carburettor and a fuel saving device positioned between the carburettor and a common inlet to the combustion chamber of an engine.

BRIEF DESCRIPTION OF THE DRAWINGS

Aspects of the present invention will now be described with reference to the accompanying drawings in which:

FIGURE 1 is a top perspective view of a fuel saving device according to one aspect of the present invention, and

FIGURE 2 is a top view of a fuel saving device according to another aspect of the present invention, and

FIGURES 3 and 3a are diagrammatic lines of flux created by the devices of figures 1 and 2, and

FIGURE 4 of the drawings is a plan view of a device according to a further aspect of the present invention adapted for multiple throat carburetors.

With respect to figure 1 of the drawings, the fuel saving device illustrated comprises a hexagonal shaped non-magnetic body 1 supporting a plurality of permanent magnets 2 (preferably 2 to 6), the body illustrated being constructed in two halves or having a central core and top and bottom cover plates.

The magnets 2 face a central aperture 3 and have opposed polarities as described in the abovementioned international patent application.

In this case however, the magnets extend only partially throughout the depth of the body and stop short of the top wall of the body by a distance "S".

Such an arrangement provides the option of moving the magnetic field further away from the base of a carburetor and increasing the area of magnetic influence between the point of gasoline atomization and the

point of cessation of magnetic influence.

With respect to figure 2 of the drawings, the device of figure 1 is modified to include a centrally positioned magnet 5 supported by a grate (not shown) with a magnetic field running transverse to the main magnets. The magnetic field created by the additional central magnet causes an increased 3D effect.

The polarity of the central magnet 5 is negative down.

Figures 3 and 3a of the drawings show respectively the magnetic fields generated by the device of figure 1 and the device of figure 2.

With respect to figures 3 and 3a, in figure 3, there occurs a predominant parallel plane of magnetic forces indicated by arrow 6 associated with perpendicular lines of force indicated by arrow 7. The direction of fuel is indicated by arrow 8. In figure 3, the central magnetic indicated by arrow 9 influences the magnetic forces to the extent that the perpendicular lines of force are increased in length.

The devices described have been shown to provide significant reductions in fuel consumption and significant reduction in emissions.

With respect to figure 4 of the drawings, a device for fitment to multiple throat carburetors comprises a body 10 constructed similarly to the devices previously described.

The body 10 is provided with mounting apertures 11 to suit a selected carburetor and is interposed between the carburetor and the air/fuel mixture of a system.

The body 10 is provided with primary and secondary passages 12.

Two magnets having opposed polarities as indicated are positioned in the body facing the passages 12 at approximately ninety degree spacings.

A further magnet 13 is positioned adjacent each of the smaller passages 12a.

A mild steel plate or further magnet 14 is placed between the larger pair of passages 12b.

The device illustrated generates similar magnetic fields to that described for the previous embodiments.

It will of course be realised that the above has been given by way of illustrative examples of the invention and that all such modifications and variations thereto as would be apparent to persons skilled in the art are deemed to fall within the broad scope and ambit of the invention.

DATED this 15th day of July 2003

SAVE THE WORLD AIR, INC.

By its Patent Attorneys

Cullen & Co.

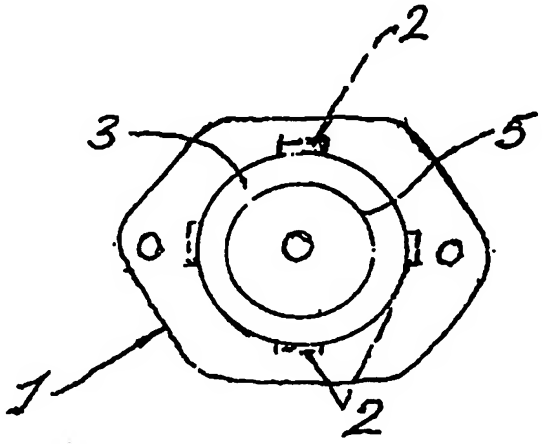

FIG 2

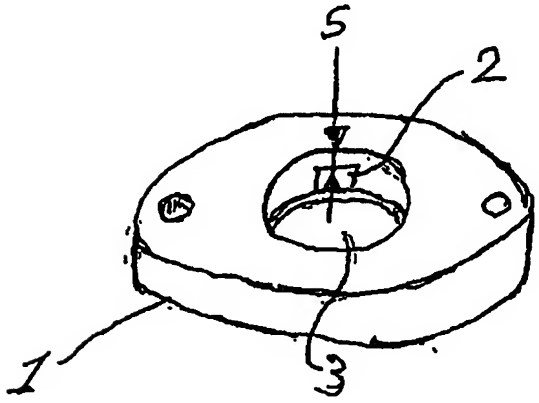

FIG 1

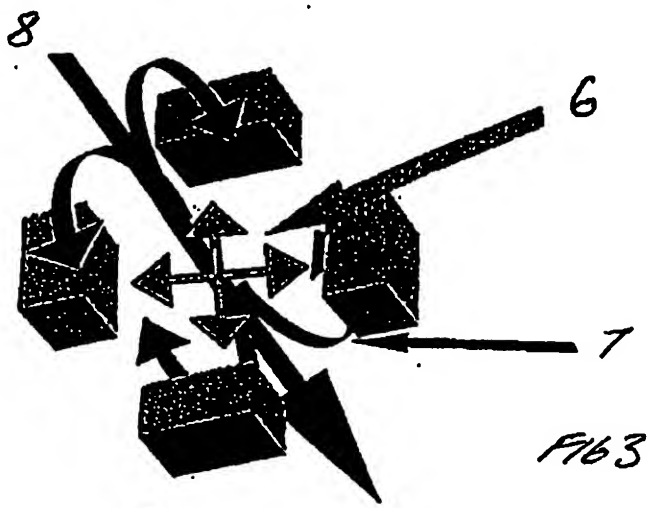

FIG 3

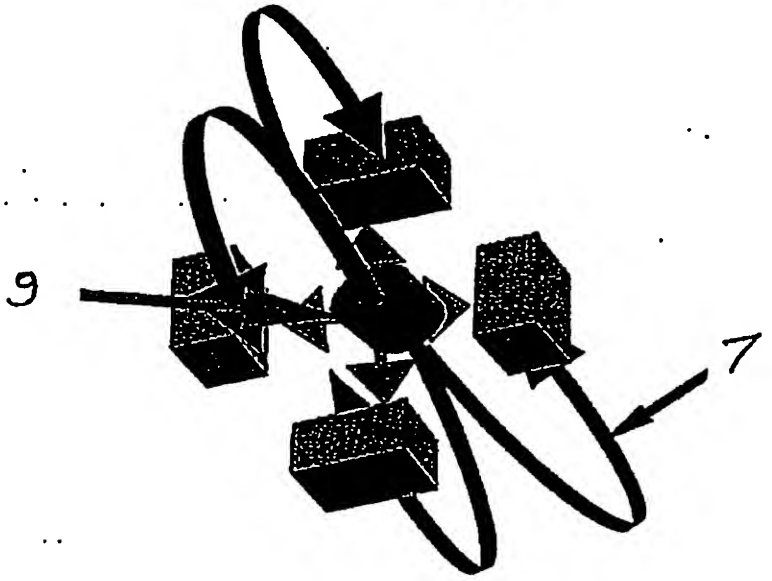

FIG 3.2

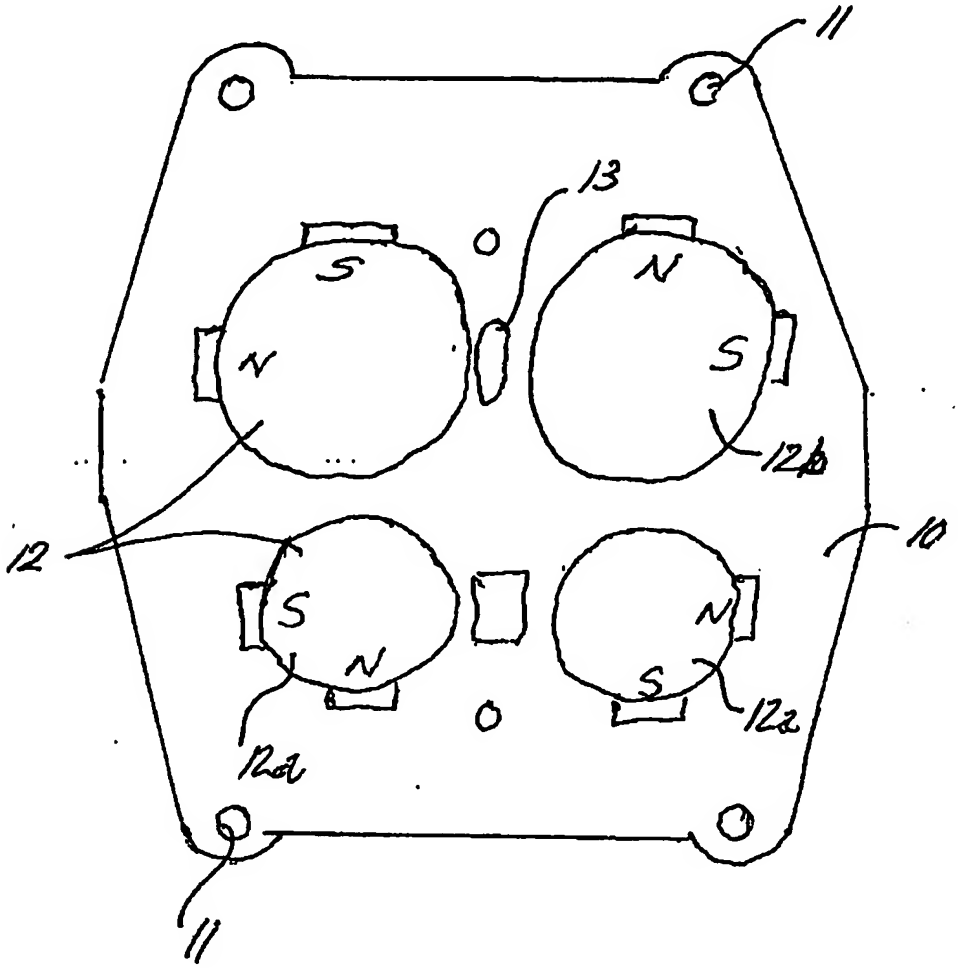

FIG 4